



1102-98.TXT

SEQUENCE LISTING

<110> Kainoh, Mie
Tanaka, Toshiaki

<120> Chimeric Proteins, their Heterodimer
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<141> 1998-11-17

<150> WO PCT/JP98/00370

<151> 1998-01-29

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Page 1

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ata	tct	gga	aat	ttg	gat	tct	cca	gaa	ggt	ggt	ttc	gat	gcc	atc	atg	768				
Ile	Ser	Gly	Asn	Leu	Asp	Ser	Pro	Glu	Gly	Gly	Phe	Asp	Ala	Ile	Met					
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caa	ggt	gca	ggt	tgt	gga	tca	ctg	att	ggc	tgg	agg	aat	ggt	aca	cgg	816				
Gln	Val	Ala	Val	Cys	Gly	Ser	Leu	Ile	Gly	Trp	Arg	Asn	Val	Thr	Arg					
			260					265					270							
ctg	ctg	gtg	ttt	tcc	aca	gat	gcc	ggg	ttt	cac	ttt	gct	gga	gat	ggg	864				
Leu	Leu	Val	Phe	Ser	Thr	Asp	Ala	Gly	Phe	His	Phe	Ala	Gly	Asp	Gly					
		275					280					285								
aaa	ctt	ggt	ggc	att	ggt	tta	cca	aat	gat	gga	caa	tgt	cac	ctg	gaa	912				
Lys	Leu	Gly	Gly	Ile	Val	Leu	Pro	Asn	Asp	Gly	Gln	Cys	His	Leu	Glu					
	290					295					300									
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Asn	Asn	Met	Tyr	Thr	Met	Ser	His	Tyr	Tyr	Asp	Tyr	Pro	Ser	Ile	Ala					
					310					315					320					
cac	ctt	gtc	cag	aaa	ctg	agt	gaa	aat	aat	att	cag	aca	att	ttt	gca	1008				
His	Leu	Val	Gln	Lys	Leu	Ser	Glu	Asn	Asn	Ile	Gln	Thr	Ile	Phe	Ala					
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gtt	act	gaa	gaa	ttt	cag	cct	gtt	tac	aag	gag	ctg	aaa	aac	ttg	atc	1056				
Val	Thr	Glu	Glu	Phe	Gln	Pro	Val	Tyr	Lys	Glu	Leu	Lys	Asn	Leu	Ile					
			340					345					350							
cct	aag	tca	gca	gta	gga	aca	tta	tct	gca	aat	tct	agc	aat	gta	att	1104				
Pro	Lys	Ser	Ala	Val	Gly	Thr	Leu	Ser	Ala	Asn	Ser	Ser	Asn	Val	Ile					
			355				360					365								
cag	ttg	atc	att	gat	gca	tac	aat	tcc	ctt	tcc	tca	gaa	gtc	att	ttg	1152				
Gln	Leu	Ile	Ile	Asp	Ala	Tyr	Asn	Ser	Leu	Ser	Ser	Glu	Val	Ile	Leu					
					375						380									
gaa	aac	ggc	aaa	ttg	tca	gaa	gga	gta	aca	ata	agt	tac	aaa	tct	tac	1200				
Glu	Asn	Gly	Lys	Leu	Ser	Glu	Gly	Val	Thr	Ile	Ser	Tyr	Lys	Ser	Tyr					
					390					395					400					
tgc	aag	aac	ggg	gtg	aat	gga	aca	ggg	gaa	aat	gga	aga	aaa	tgt	tcc	1248				
Cys	Lys	Asn	Gly	Val	Asn	Gly	Thr	Gly	Glu	Asn	Gly	Arg	Lys	Cys	Ser					
				405				410						415						
aat	att	tcc	att	gga	gat	gag	gtt	caa	ttt	gaa	att	agc	ata	act	tca	1296				

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Asn	Ile	Ser	Ile	Gly	Asp	Glu	Val	Gln	Phe	Glu	Ile	Ser	Ile	Thr	Ser		
			420					425					430				
aat	aag	tgt	cca	aaa	aag	gat	tct	gac	agc	ttt	aaa	att	agg	cct	ctg	1344	
Asn	Lys	Cys	Pro	Lys	Lys	Asp	Ser	Asp	Ser	Phe	Lys	Ile	Arg	Pro	Leu		
		435					440					445					
ggc	ttt	acg	gag	gaa	gta	gag	gtt	att	ctt	cag	tac	atc	tgt	gaa	tgt	1392	
Gly	Phe	Thr	Glu	Glu	Val	Glu	Val	Ile	Leu	Gln	Tyr	Ile	Cys	Glu	Cys		
	450					455					460						
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Glu	Cys	Gln	Ser	Glu	Gly	Ile	Pro	Glu	Ser	Pro	Lys	Cys	His	Glu	Gly		
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Asn	Gly	Thr	Phe	Glu	Cys	Gly	Ala	Cys	Arg	Cys	Asn	Glu	Gly	Arg	Val		
				485					490					495			
ggt	aga	cat	tgt	gaa	tgc	agc	aca	gat	gaa	gtt	aac	agt	gaa	gac	atg	1536	
Gly	Arg	His	Cys	Glu	Cys	Ser	Thr	Asp	Glu	Val	Asn	Ser	Glu	Asp	Met		
			500					505					510				
gat	gct	tac	tgc	agg	aaa	gaa	aac	agt	tca	gaa	atc	tgc	agt	aac	aat	1584	
Asp	Ala	Tyr	Cys	Arg	Lys	Glu	Asn	Ser	Ser	Glu	Ile	Cys	Ser	Asn	Asn		
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gga	gag	tgc	gtc	tgc	gga	cag	tgt	gtt	tgt	agg	aag	agg	gat	aat	aca	1632	
Gly	Glu	Cys	Val	Cys	Gly	Gln	Cys	Val	Cys	Arg	Lys	Arg	Asp	Asn	Thr		
	530					535					540						
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Asn	Glu	Ile	Tyr	Ser	Gly	Lys	Phe	Cys	Glu	Cys	Asp	Asn	Phe	Asn	Cys		
545					550					555					560		
gat	aga	tcc	aat	ggc	tta	att	tgt	gga	gga	aat	ggt	gtt	tgc	aag	tgt	1728	
Asp	Arg	Ser	Asn	Gly	Leu	Ile	Cys	Gly	Gly	Asn	Gly	Val	Cys	Lys	Cys		
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Arg	Val	Cys	Glu	Cys	Asn	Pro	Asn	Tyr	Thr	Gly	Ser	Ala	Cys	Asp	Cys		
			580					585					590				
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Ser	Leu	Asp	Thr	Ser	Thr	Cys	Glu	Ala	Ser	Asn	Gly	Gln	Ile	Cys	Asn		
		595					600					605					
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Gly	Arg	Gly	Ile	Cys	Glu	Cys	Gly	Val	Cys	Lys	Cys	Thr	Asp	Pro	Lys		
	610					615					620						
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Phe	Gln	Gly	Gln	Thr	Cys	Glu	Met	Cys	Gln	Thr	Cys	Leu	Gly	Val	Cys		
625					630					635					640		
gct	gag	cat	aaa	gaa	tgt	gtt	cag	tgc	aga	gcc	ttc	aat	aaa	gga	gaa	1968	
Ala	Glu	His	Lys	Glu	Cys	Val	Gln	Cys	Arg	Ala	Phe	Asn	Lys	Gly	Glu		
				645					650					655			
aag	aaa	gac	aca	tgc	aca	cag	gaa	tgt	tcc	tat	ttt	aac	att	acc	aag	2016	
Lys	Lys	Asp	Thr	Cys	Thr	Gln	Glu	Cys	Ser	Tyr	Phe	Asn	Ile	Thr	Lys		
			660					665					670				

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 Val Glu Ser Arg Asp Lys Leu Pro Gln Pro Val Gln Pro Asp Pro Val
 675 680 685

tcc cat tgt aag gag aag gat gtt gac gac tgt tgg ttc tat ttt acg 2112
 Ser His Cys Lys Glu Lys Asp Val Asp Asp Cys Trp Phe Tyr Phe Thr
 690 695 700

tat tca gtg aat ggg aac aac gag gtc atg gtt cat gtt gtg gag aat 2160
 Tyr Ser Val Asn Gly Asn Asn Glu Val Met Val His Val Val Glu Asn
 705 710 715 720

cca gag tgt ccc act ggt cca gag gat ccc gag ctgctggaag caggctcagc 2213
 Pro Glu Cys Pro Thr Gly Pro Glu Asp Pro Glu
 725 730

gctcctgcct ggacgcatcc cggctatgca gccccagtc agggcagcaa ggcaggcccc 2273
 gtctgcctct tcacccggag cctctgccc cccactcat gtcagggag agggctcttct 2333
 ggctttttcc caggctctgg gcaggcacag gctaggtgcc cctaaccag gccctgcaca 2393
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 tgacctaaag ccaccccaaa ggccaaactc tccactccct cagctcggac accttctctc 2513
 ctcccagatt ccagtaactc ccaatcttct ctctgca gag ccc aaa tct tgt gac 2568
 Glu Pro Lys Ser Cys Asp
 735

aaa act cac aca tgc cca ccg tgc cca ggtaagccag cccaggcctc 2615
 Lys Thr His Thr Cys Pro Pro Cys Pro
 740 745

gccctccagc tcaaggcggg acaggtgccc tagagtagcc tgcattccagg gacaggcccc 2675
 agccgggtgc tgacacgtcc acctccatct ctctctca gca cct gaa ctc ctg ggg 2731
 Ala Pro Glu Leu Leu Gly
 750

gga ccg tca gtc ttc ctc ttc ccc cca aaa ccc aag gac acc ctc atg 2779
 Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met
 755 760 765

atc tcc cgg acc cct gag gtc aca tgc gtg gtg gtg gac gtg agc cac 2827
 Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His
 770 775 780

gaa gac cct gag gtc aag ttc aac tgg tac gtg gac ggc gtg gag gtg 2875
 Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val
 785 790 795 800

cat aat gcc aag aca aag ccg cgg gag gag cag tac aac agc acg tac 2923
 His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr
 805 810 815

cgg gtg gtc agc gtc ctc acc gtc ctg cac cag gac tgg ctg aat ggc 2971
 Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly
 820 825 830

aag gag tac aag tgc aag gtc tcc aac aaa gcc ctc cca gcc ccc atc 3019
 Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile
 835 840 845

gag aaa acc atc tcc aaa gcc aaa ggtgggaccc gtggggtgcg agggccacat 3073
 Glu Lys Thr Ile Ser Lys Ala Lys
 850 855

ggacagaggc cggctcggcc caccctctgc cctgagagtg accgctgtac caacctctgt 3133

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cctaca ggg cag ccc cga gaa cca cag gtg tac acc ctg ccc cca tcc 3181
 Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser
 860 865 870

cgg gat gag ctg acc aag aac cag gtc agc ctg acc tgc ctg gtc aaa 3229
 Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys
 875 880 885

ggc ttc tat ccc agc gac atc gcc gtg gag tgg gag agc aat ggg cag 3277
 Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln
 890 895 900

ccg gag aac aac tac aag acc acg cct ccc gtg ctg gat tcc gac ggc 3325
 Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly
 905 910 915

tcc ttc ttc ctc tac agc aag ctc acc gtg gac aag agc agg tgg cag 3373
 Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln
 920 925 930

cag ggg aac gtc ttc tca tgc tcc gtg atg cat gag gct ctg cac aac 3421
 Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn
 935 940 945 950

cac tac acg cag aag agc ctc tcc ctg tct ccg ggt aaa tga 3463
 His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys *
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 Leu Ala Leu Ser Gln Gly Ile Leu Asn Cys Cys Leu Ala Tyr Asn Val
 20 25 30
 ggt ctc cca gaa gca aaa ata ttt tcc ggt cct tca agt gaa cag ttt 144
 Gly Leu Pro Glu Ala Lys Ile Phe Ser Gly Pro Ser Ser Glu Gln Phe
 35 40 45
 ggg tat gca gtg cag cag ttt ata aat cca aaa ggc aac tgg tta ctg 192
 Gly Tyr Ala Val Gln Gln Phe Ile Asn Pro Lys Gly Asn Trp Leu Leu
 50 55 60

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gtt Val 65	ggt Gly	tca Ser	ccc Pro	tgg Trp	agt Ser 70	ggc Gly	ttt Phe	cct Pro	gag Glu	aac Asn 75	cga Arg	atg Met	gga Gly	gat Asp	gtg Val 80	240
tat Tyr	aaa Lys	tgt Cys	cct Pro	gtt Val 85	gac Asp	cta Leu	tcc Ser	act Thr	gcc Ala 90	aca Thr	tgt Cys	gaa Glu	aaa Lys	cta Leu 95	aat Asn	288
ttg Leu	caa Gln	act Thr	tca Ser 100	aca Thr	agc Ser	att Ile	cca Pro	aat Asn 105	gtt Val	act Thr	gag Glu	atg Met	aaa Lys 110	acc Thr	aac Asn	336
atg Met	agc Ser	ctc Leu 115	ggc Gly	ttg Leu	atc Ile	ctc Leu	acc Thr 120	agg Arg	aac Asn	atg Met	gga Gly	act Thr 125	gga Gly	ggt Gly	ttt Phe	384
ctc Leu	aca Thr 130	tgt Cys	ggt Gly	cct Pro	ctg Leu	tgg Trp 135	gca Ala	cag Gln	caa Gln	tgt Cys	ggg Gly 140	aat Asn	cag Gln	tat Tyr	tac Tyr	432
aca Thr 145	acg Thr	ggt Gly	gtg Val	tgt Cys	tct Ser 150	gac Asp	atc Ile	agt Ser	cct Pro	gat Asp 155	ttt Phe	cag Gln	ctc Leu	tca Ser	gcc Ala 160	480
agc Ser	ttc Phe	tca Ser	cct Pro	gca Ala 165	act Thr	cag Gln	ccc Pro	tgc Cys	cct Pro 170	tcc Ser	ctc Leu	ata Ile	gat Asp	gtt Val 175	gtg Val	528
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aca Thr 210	cag Gln	gtg Val	ggg Gly	tta Leu	att Ile	cag Gln 215	tat Tyr	gcc Ala	aat Asn	aat Asn	cca Pro 220	aga Arg	gtt Val	gtg Val	ttt Phe	672
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caa Gln	tat Tyr	gca Ala 260	aga Arg	aaa Lys	tat Tyr	gcc Ala	tat Tyr	tca Ser 265	gca Ala	gct Ala	tct Ser	ggt Gly	ggg Gly 270	cga Arg	cga Arg	816
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ggt Gly 290	tca Ser	atg Met	ttg Leu	aaa Lys	gct Ala	gtg Val 295	att Ile	gat Asp	caa Gln	tgc Cys	aac Asn 300	cat His	gac Asp	aat Asn	ata Ile	912
ctg Leu	agg Arg	ttt Phe	ggc Gly	ata Ile	gca Ala	gtt Val	ctt Leu	ggg Gly	tac Tyr	tta Leu	aac Asn	aga Arg	aac Asn	gcc Ala	ctt Leu	960

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ttg Leu	atc Ile	ttt Phe	cct Pro 420	aaa Lys	caa Gln	gcc Ala	ttt Phe	gac Asp 425	caa Gln	att Ile	ctg Leu	cag Gln	gac Asp 430	aga Arg	aat Asn	1296			
cac His	agt Ser	tca Ser 435	tat Tyr	tta Leu	ggg Gly	tac Tyr	tct Ser 440	gtg Val	gct Ala	gca Ala	att Ile	tct Ser 445	act Thr	gga Gly	gaa Glu	1344			
agc Ser	act Thr 450	cac His	ttt Phe	gtt Val	gct Ala	ggg Gly 455	gct Ala	cct Pro	cgg Arg	gca Ala	aat Asn 460	tat Tyr	acc Thr	ggc Gly	cag Gln	1392			
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gct Ala	cac His	cga Arg	ggg Gly	gac Asp 485	cag Gln	att Ile	ggc Gly	tcc Ser	tat Tyr 490	ttt Phe	ggg Gly	agt Ser	gtg Val	ctg Leu 495	tgt Cys	1488			
tca Ser	gtt Val	gat Asp	gtg Val 500	gat Asp	aaa Lys	gac Asp	acc Thr	att Ile 505	aca Thr	gac Asp	gtg Val	ctc Leu	ttg Leu 510	gta Val	ggg Gly	1536			
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ggc Gly 545	ccc Pro	gag Glu	ggc Gly	att Ile	gaa Glu 550	aac Asn	act Thr	cga Arg	ttt Phe	ggg Gly 555	tca Ser	gca Ala	att Ile	gca Ala	gct Ala 560	1680			
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Phe Gln Thr Val Gln Leu Thr Ala Ala Ala Glu Ile Asn Thr Tyr Asn
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cct gag ata tat gtg att gaa gat aac act gtt acg att ccc ctg atg 3360
Pro Glu Ile Tyr Val Ile Glu Asp Asn Thr Val Thr Ile Pro Leu Met
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ata atg aaa cct gat gag aaa gcc gaa gta cca aca gat ccc gag 3405
Ile Met Lys Pro Asp Glu Lys Ala Glu Val Pro Thr Asp Pro Glu
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1265

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Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu
1090      1095      1100
Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
1105      1110      1115      1120
Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu
1125      1130      1135
Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
1140      1145      1150
Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
1155      1160      1165
Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp
1170      1175      1180
Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His
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Gly Lys

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Lys Ser Cys Gly Glu Cys Ile Gln Ala Gly Pro Asn Cys Gly Trp Cys
35      40      45
Thr Asn Ser Thr Phe Leu Gln Glu Gly Met Pro Thr Ser Ala Arg Cys
50      55      60
Asp Asp Leu Glu Ala Leu Lys Lys Lys Gly Cys Pro Pro Asp Asp Ile
65      70      75      80
Glu Asn Pro Arg Gly Ser Lys Asp Ile Lys Lys Asn Lys Asn Val Thr
85      90      95
Asn Arg Ser Lys Gly Thr Ala Glu Lys Leu Lys Pro Glu Asp Ile His
100      105      110
Gln Ile Gln Pro Gln Gln Leu Val Leu Arg Leu Arg Ser Gly Glu Pro
115      120      125
Gln Thr Phe Thr Leu Lys Phe Lys Arg Ala Glu Asp Tyr Pro Ile Asp
130      135      140
Leu Tyr Tyr Leu Met Asp Leu Ser Tyr Ser Met Lys Asp Asp Leu Glu
145      150      155      160
Asn Val Lys Ser Leu Gly Thr Asp Leu Met Asn Glu Met Arg Arg Ile
165      170      175
Thr Ser Asp Phe Arg Ile Gly Phe Gly Ser Phe Val Glu Lys Thr Val
180      185      190
Met Pro Tyr Ile Ser Thr Thr Pro Ala Lys Leu Arg Asn Pro Cys Thr

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Ser	Glu	195	Asn	Cys	Thr	Thr	200	Pro	Phe	Ser	Tyr	Lys	205	Asn	Val	Leu	Ser
210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210
Leu	Thr	Asn	Lys	Gly	Glu	Val	Phe	Asn	Glu	Leu	Val	Gly	Lys	Gln	Arg	240	240
225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225
Ile	Ser	Gly	Asn	Leu	Asp	Ser	Pro	Glu	Gly	Gly	Phe	Asp	Ala	Ile	Met	255	255
230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230
Gln	Val	Ala	Val	Cys	Gly	Ser	Leu	Ile	Gly	Trp	Arg	Asn	Val	Thr	Arg	265	265
245	245	245	245	245	245	245	245	245	245	245	245	245	245	245	245	245	245
Leu	Leu	Val	Phe	Ser	Thr	Asp	Ala	Gly	Phe	His	Phe	Ala	Gly	Asp	Gly	270	270
260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260
Lys	Leu	Gly	Gly	Ile	Val	Leu	Pro	Asn	Asp	Gly	Gln	Cys	His	Leu	Glu	285	285
275	275	275	275	275	275	275	275	275	275	275	275	275	275	275	275	275	275
Asn	Asn	Met	Tyr	Thr	Met	Ser	His	Tyr	Tyr	Asp	Tyr	Pro	Ser	Ile	Ala	300	300
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His	Leu	Val	Gln	Lys	Leu	Ser	Glu	Asn	Asn	Ile	Gln	Thr	Ile	Phe	Ala	315	315
305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305
Val	Thr	Glu	Glu	Phe	Gln	Pro	Val	Tyr	Lys	Glu	Leu	Lys	Asn	Leu	Ile	330	330
325	325	325	325	325	325	325	325	325	325	325	325	325	325	325	325	325	325
Pro	Lys	Ser	Ala	Val	Gly	Thr	Leu	Ser	Ala	Asn	Ser	Ser	Asn	Val	Ile	345	345
340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340	340
Gln	Leu	Ile	Ile	Asp	Ala	Tyr	Asn	Ser	Leu	Ser	Ser	Glu	Val	Ile	Leu	360	360
355	355	355	355	355	355	355	355	355	355	355	355	355	355	355	355	355	355
Glu	Asn	Gly	Lys	Leu	Ser	Glu	Gly	Val	Thr	Ile	Ser	Tyr	Lys	Ser	Tyr	370	370
375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375
Cys	Lys	Asn	Gly	Val	Asn	Gly	Thr	Gly	Glu	Asn	Gly	Arg	Lys	Cys	Ser	385	385
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Asn	Ile	Ser	Ile	Gly	Asp	Glu	Val	Gln	Phe	Glu	Ile	Ser	Ile	Thr	Ser	405	405
410	410	410	410	410	410	410	410	410	410	410	410	410	410	410	410	410	410
Asn	Lys	Cys	Pro	Lys	Lys	Asp	Ser	Asp	Ser	Phe	Lys	Ile	Arg	Pro	Leu	420	420
425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425
Gly	Phe	Thr	Glu	Glu	Val	Glu	Val	Ile	Leu	Gln	Tyr	Ile	Cys	Glu	Cys	435	435
440	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440
Glu	Cys	Gln	Ser	Glu	Gly	Ile	Pro	Glu	Ser	Pro	Lys	Cys	His	Glu	Gly	450	450
455	455	455	455	455	455	455	455	455	455	455	455	455	455	455	455	455	455
Asn	Gly	Thr	Phe	Glu	Cys	Gly	Ala	Cys	Arg	Cys	Asn	Glu	Gly	Arg	Val	465	465
470	470	470	470	470	470	470	470	470	470	470	470	470	470	470	470	470	470
Gly	Arg	His	Cys	Glu	Cys	Ser	Thr	Asp	Glu	Val	Asn	Ser	Glu	Asp	Met	485	485
490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490
Asp	Ala	Tyr	Cys	Arg	Lys	Glu	Asn	Ser	Ser	Glu	Ile	Cys	Ser	Asn	Asn	500	500
505	505	505	505	505	505	505	505	505	505	505	505	505	505	505	505	505	505
Gly	Glu	Cys	Val	Cys	Gly	Gln	Cys	Val	Cys	Arg	Lys	Arg	Asp	Asn	Thr	515	515
520	520	520	520	520	520	520	520	520	520	520	520	520	520	520	520	520	520
Asn	Glu	Ile	Tyr	Ser	Gly	Lys	Phe	Cys	Glu	Cys	Asp	Asn	Phe	Asn	Cys	530	530
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Asp	Arg	Ser	Asn	Gly	Leu	Ile	Cys	Gly	Gly	Asn	Gly	Val	Cys	Lys	Cys	545	545
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Arg	Val	Cys	Glu	Cys	Asn	Pro	Asn	Tyr	Thr	Gly	Ser	Ala	Cys	Asp	Cys	565	565
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Ser	Leu	Asp	Thr	Ser	Thr	Cys	Glu	Ala	Ser	Asn	Gly	Gln	Ile	Cys	Asn	580	580
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Gly	Arg	Gly	Ile	Cys	Glu	Cys	Gly	Val	Cys	Lys	Cys	Thr	Asp	Pro	Lys	595	595
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Phe	Gln	Gly	Gln	Thr	Cys	Glu	Met	Cys	Gln	Thr	Cys	Leu	Gly	Val	Cys	610	610
615	615	615	615	615	615	615	615	615	615	615	615	615	615	615	615	615	615
Ala	Glu	His	Lys	Glu	Cys	Val	Gln	Cys	Arg	Ala	Phe	Asn	Lys	Gly	Glu	625	625
630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630
Lys	Lys	Asp	Thr	Cys	Thr	Gln	Glu	Cys	Ser	Tyr	Phe	Asn	Ile	Thr	Lys	645	645
650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650
Val	Glu	Ser	Arg	Asp	Lys	Leu	Pro	Gln	Pro	Val	Gln	Pro	Asp	Pro	Val	660	660
665	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665
Ser	His	Cys	Lys	Glu	Lys	Asp	Val	Asp	Asp	Cys	Trp	Phe	Tyr	Phe	Thr	675	675
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Tyr Ser Val Asn Gly Asn Asn Glu Val Met Val His Val Val Glu Asn
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 Pro Glu Cys Pro Thr Gly Pro Glu Asp Pro Glu Glu Pro Lys Ser Cys
 725 730 735
 Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly
 740 745 750
 Gly Pro Ser Val Phe Leu Phe Pro Lys Pro Lys Asp Thr Leu Met
 755 760 765
 Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His
 770 775 780
 Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val
 785 790 795 800
 His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr
 805 810 815
 Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly
 820 825 830
 Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile
 835 840 845
 Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val
 850 855 860
 Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser
 865 870 875 880
 Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu
 885 890 895
 Trp Glu Ser Asn Gly Gln Pro Glu Asn Tyr Lys Thr Thr Pro Pro
 900 905 910
 Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val
 915 920 925
 Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met
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 35 40 45
 Gly Tyr Ala Val Gln Gln Phe Ile Asn Pro Lys Gly Asn Trp Leu Leu
 50 55 60
 Val Gly Ser Pro Trp Ser Gly Phe Pro Glu Asn Arg Met Gly Asp Val
 65 70 75 80
 Tyr Lys Cys Pro Val Asp Leu Ser Thr Ala Thr Cys Glu Lys Leu Asn
 85 90 95
 Leu Gln Thr Ser Thr Ser Ile Pro Asn Val Thr Glu Met Lys Thr Asn
 100 105 110
 Met Ser Leu Gly Leu Ile Leu Thr Arg Asn Met Gly Thr Gly Gly Phe
 115 120 125
 Leu Thr Cys Gly Pro Leu Trp Ala Gln Gln Cys Gly Asn Gln Tyr Tyr
 130 135 140

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Ser	Phe	Ser	Pro	Ala	Thr	Gln	Pro	Cys	Pro	Ser	Leu	Ile	Asp	Val	Val
				165					170					175	
Val	Val	Cys	Asp	Glu	Ser	Asn	Ser	Ile	Tyr	Pro	Trp	Asp	Ala	Val	Lys
			180					185					190		
Asn	Phe	Leu	Glu	Lys	Phe	Val	Gln	Gly	Leu	Asp	Ile	Gly	Pro	Thr	Lys
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Thr	Gln	Val	Gly	Leu	Ile	Gln	Tyr	Ala	Asn	Asn	Pro	Arg	Val	Val	Phe
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Asn	Leu	Asn	Thr	Tyr	Lys	Thr	Lys	Glu	Glu	Met	Ile	Val	Ala	Thr	Ser
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Gln	Thr	Ser	Gln	Tyr	Gly	Gly	Asp	Leu	Thr	Asn	Thr	Phe	Gly	Ala	Ile
				245					250					255	
Gln	Tyr	Ala	Arg	Lys	Tyr	Ala	Tyr	Ser	Ala	Ala	Ser	Gly	Gly	Arg	Arg
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Ser	Ala	Thr	Lys	Val	Met	Val	Val	Val	Thr	Asp	Gly	Glu	Ser	His	Asp
		275					280					285			
Gly	Ser	Met	Leu	Lys	Ala	Val	Ile	Asp	Gln	Cys	Asn	His	Asp	Asn	Ile
	290					295					300				
Leu	Arg	Phe	Gly	Ile	Ala	Val	Leu	Gly	Tyr	Leu	Asn	Arg	Asn	Ala	Leu
305					310					315					320
Asp	Thr	Lys	Asn	Leu	Ile	Lys	Glu	Ile	Lys	Ala	Ile	Ala	Ser	Ile	Pro
				325					330					335	
Thr	Glu	Arg	Tyr	Phe	Phe	Asn	Val	Ser	Asp	Glu	Ala	Ala	Leu	Leu	Glu
			340					345					350		
Lys	Ala	Gly	Thr	Leu	Gly	Glu	Gln	Ile	Phe	Ser	Ile	Glu	Gly	Thr	Val
		355					360					365			
Gln	Gly	Gly	Asp	Asn	Phe	Gln	Met	Glu	Met	Ser	Gln	Val	Gly	Phe	Ser
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Ala	Phe	Gly	Trp	Ser	Gly	Thr	Ile	Val	Gln	Lys	Thr	Ser	His	Gly	His
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Leu	Ile	Phe	Pro	Lys	Gln	Ala	Phe	Asp	Gln	Ile	Leu	Gln	Asp	Arg	Asn
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His	Ser	Ser	Tyr	Leu	Gly	Tyr	Ser	Val	Ala	Ala	Ile	Ser	Thr	Gly	Glu
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Ser	Thr	His	Phe	Val	Ala	Gly	Ala	Pro	Arg	Ala	Asn	Tyr	Thr	Gly	Gln
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465					470					475					480
Ala	His	Arg	Gly	Asp	Gln	Ile	Gly	Ser	Tyr	Phe	Gly	Ser	Val	Leu	Cys
				485					490					495	
Ser	Val	Asp	Val	Asp	Lys	Asp	Thr	Ile	Thr	Asp	Val	Leu	Leu	Val	Gly
			500					505				510			
Ala	Pro	Met	Tyr	Met	Ser	Asp	Leu	Lys	Lys	Glu	Glu	Gly	Arg	Val	Tyr
		515					520					525			
Leu	Phe	Thr	Ile	Lys	Lys	Gly	Ile	Leu	Gly	Gln	His	Gln	Phe	Leu	Glu
	530					535					540				
Gly	Pro	Glu	Gly	Ile	Glu	Asn	Thr	Arg	Phe	Gly	Ser	Ala	Ile	Ala	Ala
545					550					555					560
Leu	Ser	Asp	Ile	Asn	Met	Asp	Gly	Phe	Asn	Asp	Val	Ile	Val	Gly	Ser
				565					570					575	
Pro	Leu	Glu	Asn	Gln	Asn	Ser	Gly	Ala	Val	Tyr	Ile	Tyr	Asn	Gly	His
			580					585					590		
Gln	Gly	Thr	Ile	Arg	Thr	Lys	Tyr	Ser	Gln	Lys	Ile	Leu	Gly	Ser	Asp
		595					600					605			
Gly	Ala	Phe	Arg	Ser	His	Leu	Gln	Tyr	Phe	Gly	Arg	Ser	Leu	Asp	Gly
	610					615					620				
Tyr	Gly	Asp	Leu	Asn	Gly	Asp	Ser	Ile	Thr	Asp	Val	Ser	Ile	Gly	Ala
625					630					635					640
Phe	Gly	Gln	Val	Val	Gln	Leu	Trp	Ser	Gln	Ser	Ile	Ala	Asp	Val	Ala

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 Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val
 1170 1175 1180
 Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp
 1185 1190 1195 1200
 Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr
 1205 1210 1215
 Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp
 1220 1225 1230
 Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu
 1235 1240 1245
 Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg
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 Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys
 1265 1270 1275 1280
 Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp
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 Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys
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 Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser
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 Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser
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 Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser
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 Leu Ser Leu Ser Pro Gly Lys
 1365